(Pages : 3) **R – 1644**

Reg. No. : .....

Name : .....

Sixth Semester B.C.A. Degree Examination, April 2023

Career Related First Degree Programme under CBCSS

Group 2(b) – Computer Applications

Course

CP 1644 : TRENDS IN COMPUTING

(2018 Admission onwards)

Time : 3 Hours Max. Marks : 80

SECTION – A [Very Short Answer Type]

One word to maximum of two sentences. Answer **all** questions. Each question carries **1** mark.

1. The combination of the public cloud and the private cloud is called _____

2. What is utility computing?

3. What does the abbreviation IaaS mean?

4. Cloud computing is a kind of abstraction that is based on the notion of combining physical resources and represents them as _____ resources to users.

5. Expand the term SOA.

6. Define reliability in edge computing.

7. Write any two advantages of edge computing.

P.T.O.

8. What is edge computing?

9. What is an artificial neural network?

10. What is an ordinary set?

(10 × 1 = 10 Marks)

SECTION – B [Short Answer Type]

Not to exceed one paragraph, Answer any **eight** questions. **Each** question carries **2** marks.

11. What is the significance of internet clouds?

12. Write any two applications of cloud computing.

13. Define the concept of SaaS.

14. What are computing clusters?

15. What are the advantages of using on-demand computing?

16. Discuss the term web services.

17. Define the term edge cloud.

18. Discuss the significance of grid computing.

19. What is distributed computing?

20. Why did you use mobile edge computing?

21. What is the use of threshold values in neural networks?

22. Define fuzzy logic.

(8 × 2 = 16 Marks)

SECTION – C [Short Essay]

Not to exceed 120 words, answer any **six questions. Each** question carries **4** marks.

23. How does cloud computing work?

24. Describe the characteristics of PaaS.

25. Explain P2P networks in detail.

26. What are the features of cloud storage?

27. How does edge computing work?

28. With the help of a diagram explain grid layered architecture.

29. Discuss the applications of mobile edge computing in 5G technologies.

30. What are the differences between soft computing and hard computing?

31. Describe the applications of fuzzy logic.

(6 × 4 = 24 Marks)

SECTION – D [Long Essay]

Answer any **two** questions. **Each** question carries **15** marks.

32. What is cloud computing? Discuss the components of cloud computing architecture in detail.

33. Compare and contrast public clouds and private clouds.

34. Differentiate between edge computing and cloud computing.

35. Explain in detail supervised training and unsupervised training in neural networks.

(2 × 15 = 30 Marks)

(Pages : 3) **R – 1649**

Reg. No. : .....

Name : .....

Sixth Semester B.C.A. Degree Examination, April 2023

Career Related First Degree Programme under CBCSS

Group 2(b) – Computer Applications

Elective course

CP 1661.2 – ENTREPRENEURSHIP AND INNOVATION

(2018 Admission onwards)

Time : 3 Hours Max. Marks : 80

SECTION – A

Answer **all** questions in not more than **two** sentences each. **Each** question carries 1 mark.

1 What is Entrepreneurship?

2 Who is an Intrapreneur?

3 Who is an Induced Entrepreneur?

4 What do you mean by Incentives?

5 Give the expansion of KITCO.

6 Define a Small Scale unit.

7 what is **an** Industrial Estate?

8 What do you understand by Bridge Capital?

P.T.O.

9. Define Project Report.

10. What is Feasibility study?

(10 × 1 = 10 Marks)

SECTION – B

Answer any **eight** questions in not exceeding one paragraph each. **Each** question carries **2** marks.

11. What do you mean by Margin money loan?

12. Explain the term Innovation.

13. What do you mean by industrial sickness?

14. What is single window system?

15. Explain investment allowance.

16. What is Mahila Udyan Nidhi?

17. What is legitimacy of entrepreneurship?

18. What are the functions of KITCO?

19. What is the Credit Guarantee Fund Trust scheme for MSMEs?

20. State the benefits of industrial estates.

21. State the need for registration of SSI units.

22. What are the objectives of a project report?

(8 × 2 = 16 Marks)

SECTION – C

Answer any **six** questions in not exceeding 120 words each. **Each** question carries **4** marks.

23. Enumerate briefly the various types of entrepreneurs.

24. Write a note on the problems faced by women entrepreneurs.

25. What are the sources of project ideas?

26. Discuss the salient features of MSME Act 2006.

27. What are the advantages of Small scale industrial units?

28. Discuss briefly the benefits of project analysis.

29. Discuss the factors motivating entrepreneurial growth.

30. What are the signals of industrial sickness?

31. What are the functions of SIDCO?

(6 × 4 = 24 Marks)

SECTION – D

Answer any **two** questions in not exceeding Four pages each. **Each** question carries **15** marks.

32. Elucidate the various factors affecting Entrepreneurial growth.

33. Write notes on

    (a) NSIC

    (b) STEDP

    (c) NEDB.

34. Discuss the need for incentives. Also discuss the different types of incentives and subsidies provided by the government to small and medium enterprises in India.

35. Explain the factors considered for feasibility analysis of a project.

(2 × 15 = 30 Marks)

(Pages : 3) **R – 1643**

Reg. No. : .....

Name : .....

Sixth Semester B.C.A. Degree Examination, April 2023

Career Related First Degree Programme under CBCSS

Group 2 (b) – Computer Applications

Core Course

CP 1643 : DESIGN AND ANALYSIS OF ALGORITHMS

(2018 Admission Onwards)

Time : 3 Hours Max. Marks : 80

SECTION – A

Answer **all** questions in **one** word to maximum of one sentence.

1. ———— is a set of computational steps, which convert input to output.
2. A program is finite in nature. True/False.
3. What is recursive algorithm?
4. What is Time complexity of binary search?
5. List out basic approaches in Dynamic Programming.
6. What is the worst-case time complexity for linear search?
7. Back Tracking use ———— search technique.
8. What is spanning tree?

9. What is deterministic algorithm?

10. What is NP Hard?

(10 × 1 = 10 Marks)

SECTION – B

Answer any **eight** questions not exceeding one paragraph. **Each** question carries **2** marks.

11. Compare and contrast between Algorithm and program.

12. Differentiate Time Efficiency and Space Efficiency.

13. Define principle of optimality.

14. What is the time complexity of Strassen's matrix multiplication algorithm?

15. What is an implicit constraint?

16. Explain Greedy criteria.

17. Define multistage graph problem.

18. What is fractional Knapsack problem?

19. What is solution space? Give an example.

20. What does a brute-force algorithm do?

21. Explain the problem All Pairs Shortest path.

22. Give an example, which can solve using randomized algorithm.

(8 × 2 = 16 Marks)

SECTION – C (Short Essay)

Answer any **six** questions not exceeding 120 words. **Each** question carries **4** marks.

23. Specify the difference between divide and conquer strategy and dynamic programming.

24. Describe the general characteristics of greedy algorithm.

25. List out the applications of spanning tree.

26. Explain the general method of Branch and bound.

27. Explain Prim's algorithm for finding minimum cost spanning tree.

28. Define Implicit constraints and Explicit constraints in connection with 8 Queen problem.

29. Write short note on Live Node, E Node and dead Node in Branch and Bound state space search methods.

30. How Backtracking differs from brute force approach?

31. Differentiate classes P and NP.

(6 × 4 = 24 Marks)

SECTION – D

Answer any **two** questions not exceeding four pages. **Each** question carries **15** marks.

32. What are asymptotic notations? List and describe various asymptotic notations with an example of each.

33. Solve Max Min problem using Divide and Conquer method. Analyze its complexity.

34. Describe in detail, 4 queen problem solving using backtracking techniques.

35. Write algorithm for quick sort. Give complete analysis and explain with a set of numbers.

(2 × 15 = 30 Marks)

(Pages : 3) **R – 1623**

Reg. No. : .....

Name : .....

Sixth Semester B.Sc./B.C.A. Degree Examination, April 2023

Career Related First Degree Programme Under CBCSS

Group 2 (b) – Computer Science/Computer Applications

Core Course/Elective Course

CS 1642/CP 1661.3 : INTERNET OF THINGS (IoT)

(2018 Admission Onwards)

Time : 3 Hours Max. Marks : 80

SECTION – A (Very Short Answer Type)

In One word to maximum of one sentence. Answer **all** questions.

1. Mention the three transportation challenges in connected roadways.
2. Expand RTLS.
3. HVAC stands for _____ in smart connected buildings.
4. What is BACnet?
5. SCADA stands for _____.
6. Expand IIRA
7. FAN stands for _____.
8. Expand XMPP.
9. What is DODAG?
10. Expand FAIR.

(10 × 1 = 10 Marks)

P.T.O.

SECTION – B (Short Answer)

Not to exceed one paragraph, answer any **eight** questions. Each question carries **2** marks.

11. What is HAN? What is the technology used in it?

12. What is point-to-multipoint topologies?

13. What is Reduced Function Device?

14. What is a sensor?

15. What is 6LoWPAN mesh addressing?

16. Which are the two patterns of wirelessly connected smart objects?

17. What is TSCH?

18. What is the role of applications layer in one M2M architecture?

19. What is fog computing?

20. What is SANET?

21. What is Zigbee?

22. What is Wireless HART?

(8 × 2 = 16 Marks)

SECTION – C (Short Essay)

Not to exceed **120** words, answer any **six** questions. Each question carries **4** marks.

23. Explain the four different industrial revolution.

24. What is the purpose of IT and OT technologies?

25. What do you mean by constrained devices and networks in IoT?

26. What are the different factors by which objects are classified as smart?

27. How can you classify IoT constrained nodes?

28. Write notes on public and private partnership for public safety IoT.

29. Explain the role of mission fabric in public safety.

30. Write notes on video processing in IoT public safety information processing.

31. How are actuators classified?

(6 × 4 = 24 Marks)

SECTION – D

Answer any **two** questions. **Each** question carries **15** marks.

32. Discuss the concept of smart creatures.

33. Explain the differences between IT and IoT networks and the IoT architectural change required.

34. Explain various layers in IoTWF architecture.

35. Explain the steps and phases in OCTAVO allegro methodology.

(2 × 15 = 30 Marks)

(Pages : 4) **R – 1641**

Reg. No. : .....

Name : .....

Sixth Semester B.C.A. Degree Examination, April 2023

Career Related First Degree Programme under CBCSS

Group 2(b) – Computer Applications

Core Course

CP 1642 : OBJECT ORIENTED ANALYSIS AND DESIGN

(2018 Admission Onwards)

Time : 3 Hours Max. Marks : 80

PART – A

(Very Short Answer Type)

In one word to maximum of two sentences. Answer **all** questions. Each question carries **1** mark.

1. Define abstract class.

2. ———— concept means that the same operation may behave differently for different classes.

3. ———— defines the relationship among classes where one class shares the structure or behavior of another defined class.

4. Expand the term UML.

5. What are the notations for the use case diagrams?

6. Diagrams that are used to distribute files, libraries, and tables across the topology of hardware are called ————

7. Which diagram helps to show dynamic aspects related to a system?

8. An individual participant in the sequence diagram is represented by a ————

9. Which is the symbol used to represent the initial activity in an activity diagram?

10. What is a deployment diagram?

(10 × 1 = 10 Marks)

PART – B

(Short answer type)

Not to exceed **one** paragraph, answer **any eight** questions. Each question carries **2** marks.

11. What do you mean by the interface of a class?

12. Define object-oriented analysis.

13. What is the state of an object?

14. What is the responsibility of an object?

15. What is generalization?

16. What is multiplicity in a class diagram?

17. Write a note on composition in the class diagram.

18. What is the purpose of use case diagrams?

19. What is a sequence diagram?

20. Write any two benefits of collaboration diagrams.

21. What is a state chart diagram?

22. What is a fork node in the activity diagram?

(8 × 2 = 16 Marks)

PART – C

(Short essay)

Not to exceed **120** words, answer **any six** questions. Each question carries **4** marks.

23. Differentiate between links and association.

24. Explain the importance of inheritance.

25. Explain the role of UML in object-oriented design.

26. Discuss the visibility of class attributes and operations.

27. What is aggregation? How did you represent it in the class diagram?

28. Discuss the purpose of an interaction diagram.

29. Draw and explain the components of a sequence diagram.

30. What is an interface? How will you represent it in UML?

31. Why do you use component diagram?

(6 × 4 = 24 Marks)

PART – D

(Long essay)

Answer **any two** questions. Each question carries **15** marks.

32. Differentiate between algorithmic decomposition and object-oriented decomposition in detail.

33. Describe the object-oriented themes:

    (a) abstraction

    (b) inheritance

    (c) encapsulation

34. Draw and explain different components of the class diagram.

35. What is a collaboration diagram? With the help of an example explain the concept of the collaboration diagram.

(2 × 15 = 30 Marks)

(Pages : 3) **R – 1638**

Reg. No. : .....

Name : .....

Sixth Semester B.C.A. Degree Examination, April 2023

Career Related First Degree Programme under CBCSS

Group 2(b) – Computer Applications

Core Course

CP 1641 — MULTIMEDIA SYSTEMS

(2018 Admission onwards)

Time : 3 Hours Max. Marks : 80

SECTION – A

(Very short answer type)

In **one word** to maximum of **two** sentences. Answer **all** questions. Each question carries **1 mark.**

1. What are frames in videos?
2. MPEG is used to compress ————
3. What is the size of a block in the block preparation step of JPEG compression?
4. What is the waveform of sound?
5. How many basic types of video compressions exist?
6. What do you mean by a 1-bit image?
7. Define the resolution of an image.

P.T.O.

8. What is image compression?

9. Define horizontal retrace.

10. Expand the term NTSC.

(10 × 1 = 10 Marks)

SECTION – B

(Short answer type)

Not to exceed **one** paragraph, answer any **eight** questions. Each question carries **2** marks.

11. Define multimedia.

12. Define the term hypertext.

13. What are the characteristics of DVDs?

14. Write a note on hypermedia.

15. What is a grey-level image?

16. Discuss the importance of computer image processing.

17. What is an analog video?

18. What is PAL?

19. What does video artifact mean?

20. Why is compression necessary when working with digital video?

21. Does frame rate affect resolution. Explain.

22. What is the frequency of a sound wave?

(8 × 2 = 16 Marks)

SECTION – C

(Short Essay)

Not to exceed **120** words, answer any **six** questions. Each question carries **4** marks.

23. List out the elements of the multimedia system.
24. Explain MIDI in detail.
25. How spatial resolution of an image differs from temporal resolution?
26. What are the different types of color images? Explain.
27. What is animation? Why is it used?
28. Explain the MPEG file formats in detail.
29. What are the characteristics of videos?
30. Write notes on different types of digital video equipment.
31. Explain the computer representation of sound.

(6 × 4 = 24 Marks)

SECTION – D

(Long Essay)

Answer any **two** questions. Each question carries **15** marks.

32. Discuss the applications of multimedia in entertainment, education and health.
33. Explain the following computer image processing techniques in detail.
    (a) image recognition
    (b) image transmission.
34. Compare lossless compression and lossy compression techniques in detail.
35. What are the different types of video formats are there in multimedia? Explain.

(2 × 15 = 30 Marks)
